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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/955,558	09/17/2001	Mark Greenberg	50588/345	9815

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EXAMINER

BAKER, STEPHEN M

ART UNIT	PAPER NUMBER
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2133

DATE MAILED: 02/24/2006

Please find below and/or attached an Office communication concerning this application or proceeding.

<b>Office Action Summary</b>	<b>Application No.</b> 09/955,558	<b>Applicant(s)</b> GREENBERG ET AL.	
	<b>Examiner</b> Stephen M. Baker	<b>Art Unit</b> 2133	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

**Period for Reply**

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

**Status**

- 1) ☒ Responsive to communication(s) filed on 12 July 2005.
- 2a) ☐ This action is **FINAL**.                      2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

**Disposition of Claims**

- 4) ☒ Claim(s) 1-7 and 13-26 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-5, 13-17 and 20-24 is/are rejected.
- 7) ☒ Claim(s) 6, 7, 18, 19, 25 and 26 is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

**Application Papers**

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

**Priority under 35 U.S.C. § 119**

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All    b) ☐ Some \* c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

**Attachment(s)**

- |   |   |
|---|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892)   | 4) <input type="checkbox"/> Interview Summary (PTO-413)<br>Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948)  | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152)             |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)<br>Paper No(s)/Mail Date <u>081604</u> . | 6) <input type="checkbox"/> Other: _____  |

## DETAILED ACTION

### ***Allowable Subject Matter***

1. The indicated allowability of claims 1-5, 13-17 and 20-24 is withdrawn in view of the newly discovered reference to Hiraiwa *et al.* Rejections based on the newly cited reference follow.

### ***Claim Rejections - 35 USC § 102***

2. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

3. Claims 1-5 and 13-26 are rejected under 35 U.S.C. 102(b) as being anticipated by U.S. Patent No. 4,802,174 to Hiraiwa *et al.* ("Hiraiwa" hereafter).

Hiraiwa discloses a Viterbi decoder with two stages (17, 18) of Viterbi branch metric normalization following a "branch metric unit" (14). Although Hiraiwa elliptically refers to the second stage (18) of normalization as a "state metric normalization" because state metrics are used to decide (25) when to subtract (18) and how much to subtract from the branch metrics to accomplish the normalization (col. 5, lines 14+), however the second stage normalization (18) shown by Hiraiwa is properly seen as a branch metric normalization as it is performed on branch metrics before the branch metrics are added to previous state metrics in an ACS unit (20). Accordingly, Hiraiwa's

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normalization decision (26) operates for “subtracting a normalization amount from a branch metric value at each of said (one or more) branch metric units to produce a normalized branch metric value” under the condition that “a specified normalization condition is met.”

Regarding claims 2 and 14, the condition for Hiraiwa’s branch metric normalization (18) is that a minimum state metric becomes equal to or greater than N (col. 5, lines 15+), meaning that “a plurality of state metrics are above a threshold value,” which “plurality” is necessarily all of the state metrics.

Regarding claims 3 and 15, Hiraiwa’s ACS unit (20) performs the step of “adding said normalized branch metric value to a plurality of stored state metric (21) values.”

Regarding claim 4 and 16, Hiraiwa’s state metric memory (21) locations for storing state metrics may be said to serve as “a plurality of accumulators.”

### ***Claim Rejections - 35 USC § 103***

4. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

5. Claims 20-24 are rejected under 35 U.S.C. 103(a) as being unpatentable over Hiraiwa.

6. Hiraiwa does not discuss implementing the Viterbi decoder logic on an IC, or a machine-readable medium carrying code for defining an IC implementation of Hiraiwa’s

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decoder logic. Official notice is given that the advantages of implementing a Viterbi decoder on a single IC and of specifying IC logic using code carried on a machine-readable medium were well-known at the time the invention was made. It would have been obvious to a person having ordinary skill in the art to implement Hiraiwa's Viterbi decoder on a single IC and to use a machine-readable medium to carry code for defining an IC implementation of Hiraiwa's decoder logic. Such an implementation and medium would have been obvious because the advantages of implementing a Viterbi decoder on a single IC and of specifying IC logic using code carried on a machine-readable medium were already well-known.

#### ***Allowable Subject Matter***

7. Claims 6, 7, 18, 19, 25 and 26 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

#### ***Conclusion***

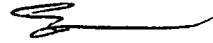
8. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Stephen M. Baker whose telephone number is (571) 272-3814. The examiner can normally be reached on Monday-Friday (11:00 AM - 7:30 PM).

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If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Albert DeCady can be reached on (571) 272-3819. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).



Stephen M. Baker  
Primary Examiner  
Art Unit 2133

smb